

REMARKS

This application has been carefully reviewed in light of the Office Action dated December 16, 2008. Claims 1-9, and 11-20 remain in this application. Claims 1, 9, 17, and 18 are the independent Claims. Claims 1, 3, 9, 11-18 have been amended. Claim 10 has been canceled, without prejudice. Support for the claim amendments is found in original claim 3 and the last line of page 11 of the Specification. It is believed that no new matter is involved in the amendments or arguments presented herein.

Reconsideration and entrance of the amendment in the application are respectfully requested.

Non-Art Based Rejections

Claim 10 was rejected under 35 U.S.C. § 112, second paragraph, for indefiniteness. In response, Claim 10 is canceled, rendering the rejection moot.

Art-Based Rejections

Claims 1-17, were rejected under 35 U.S.C. §102(b), in the alternative, under 35 U.S.C. §103(a) over JP 02-180004 (Kijima); Claims 7, 8, 11, and 13, were rejected as obvious over Kijima and further in view of U.S. Patent No. 5,866,028 (Toyota); Claim 12 was rejected as obvious over Kijima in view of Toyota and U.S. Patent No. 6,258,290 (Taguchi); Claim 18 was rejected as obvious over Kijima and further in view of Taguchi; Claims 19 and 20 were rejected as obvious over Kijima in view of Taguchi and Toyota.

Applicant respectfully traverses the rejections and submits that the claims herein are patentable in light of the clarifying amendments above and the arguments below.

The Kijima Reference

Kijima is directed to Fe^{2+}_{2+x} where $x = +.05$ to $-.10$. A residual magnetic flux density BR attains a maximum of 3.15 kG (See Kijima; Claim 1, Example 6).

The Toyota Reference

Toyota is directed to a magnet having properties including $4\pi\text{Is}=5.0$ kG, $\text{Br}=4.8$ kG, $i\text{Hc}=2.5$ kOe, $(\text{BH})_{\text{max}}=5.3$ MGOe (See Toyota; Col. 7, line 65).

The Taguchi Reference

Taguchi is directed to a magnetic powder (See Taguchi; Abstract and Table 4).

The Claims are Patentable Over the Cited References

The present application is generally directed to improving the magnetic properties of hard ferrite materials.

As defined by amended independent Claim 1, a ferrite magnet powder is represented by the composition formula $\text{AFe}^{2+}_{a(1-x)}\text{M}_{\text{ax}}\text{Fe}^{3+}_b\text{O}_{27}$. A represents at least one element selected from the group consisting of Sr, Ba, and Pb. M represents at least one element selected from the group consisting of Zn, Co, Mn, and Ni, characterized in that $0.14 \leq x \leq 0.70$, $1.5 \leq a \leq 2.2$, and $12 \leq b \leq 17$.

The applied references do not disclose or suggest the features of the present invention as defined by amended independent Claim 1. In particular, the applied references do not disclose or suggest, " $0.14 \leq x \leq 0.70$," as required by amended independent Claim 1 of the present invention.

Kijima discloses in claim 1, Fe^{2+}_{2+x} where $x = +.05$ to $-.10$. In contrast, the present invention recites $\text{AFe}^{2+}_{a(1-x)}\text{M}_{\text{ax}}\text{Fe}^{3+}_b\text{O}_{27}$ where $0.14 \leq x \leq 0.70$, such that Kijima fails to disclose or suggest Applicant's range. The range of Kijima fails to fall within that

claimed by Applicant. In particular, the amended Claim provides a range of Fe^{2+} under 1.9 while Kijima requires Fe^{2+} between 1.90 and 2.05.

The present invention recites $\text{Fe}^{2+}_{a(1-x)}\text{M}_{ax}$ which provides the unique property where the sum of Fe^{2+} and M remains constant since the amount of Fe^{2+} is reduced with the addition of M, which represents at least one element selected from the group consisting of Zn, Co, Mn and Ni. Therefore, the partial substitution of the Fe^{2+} site with element M, with the sum of Fe^{2+} and M remaining constant, provides the improvement of a saturation magnetization $4\pi\text{Ms}$ and a residual magnetic flux density B_r , even in a composition where a large amount of M (i.e. Zn) is added. The cited references do not disclose or suggest this important benefit.

Kijima discloses the addition of zinc oxide and/or a compound that turns into zinc oxide by heating, to provide Zn in the amounts of 1.0 to 10 mol% of Fe^{2+} . Therefore, Zn is added without reducing Fe^{2+} . With the increase in the Zn amount, the sum of Fe^{2+} and Zn becomes too large for the Fe^{2+} site and will lead to a reduction in magnetic properties, as opposed to the present invention.

Thus, Kijima does not disclose or suggest this feature of the present invention as required by amended independent Claim 1. The ancillary references do not remedy the deficiencies of Kijima.

Since the applied references fail to disclose, teach or suggest the above features recited in amended independent Claim 1, those references cannot be said to anticipate nor render obvious the invention which is the subject matter of that claim.

Accordingly, amended independent Claim 1 is believed to be in condition for allowance and such allowance is respectfully requested.

Applicant respectfully submits that amended independent Claims 9, 17 and 18 are allowable for at least the same reasons as discussed above with reference to amended independent Claim 1 and such allowance is respectfully requested.

Furthermore, with respect to independent Claim 9, Kijima fails to disclose or suggest a sintered magnet. With respect to independent Claim 18, Kijima fails to disclose or suggest a magnetic recording medium.

The remaining claims depend either directly or indirectly from amended independent Claims 1, 9, 17, and 18 and recite additional features of the invention which are neither disclosed nor fairly suggested by the applied references and are therefore also believed to be in condition for allowance and such allowance is respectfully requested.

For example, with respect to dependent Claims 7, 8 and 11-13, it is noted that those claims require improved magnetic properties of saturation magnetization, squareness and residual magnetic flux density. Since Kijima fails to disclose applicant's amended range, the magnetic properties of Kijima cannot be presumed to be inherently fall within applicant's ranges. Kijima further discloses magnetic properties that are inferior to those claimed by Applicant. For example, Kijima discloses in Example 6 that a residual magnetic flux density BR attains a maximum of 3.15 kG. Applicant has claimed a residual magnetic flux density of 4.2 kG or more. If Kijima taught Applicant's composition, then the measured properties would be expected to be the same. However, since the properties of Kijima are inferior to those of the present invention, Kijima fails to disclose or suggest the composition of the present invention. The same compositions would be expected to exhibit the same properties. If the properties between compositions differed, then the compositions would be expected to be different from each other as well.

Moreover, Applicant submits that the properties based on the composition of one reference (Toyoda) cannot be construed to impart the same properties on a different composition (Kijima). How one in the art can apply the inherent properties of one composition to a different composition is unclear. Clarification is respectfully requested in this regard if the rejection is to be maintained.

With respect to dependent Claim 12, that claim requires the sintered magnet to have a saturation magnetization of 5.0 kG or more and a squareness of 80% or more. However, Table 4 of Taguchi fails to disclose applicant's saturation magnetization of 5.0 kG. Applicant submits that prior art references must be considered as a whole, including disclosures that teach away from the claimed invention. Taguchi teaches away from applicant's combination of saturation magnetization and squareness.

Similarly, dependent Claims 19 and 20 are not disclosed by Table 4 of Taguchi for at least these reasons.

These requirements are nowhere taught or suggested by the cited references, and further distinguishes the present application over the cited references.

Conclusion

In view of the foregoing, it is respectfully submitted that the application is in condition for allowance. Reexamination and reconsideration of the application, as amended, are requested.

If for any reason the Examiner finds the application other than in condition for allowance, the Examiner is requested to call the undersigned attorney at the Los Angeles, California telephone number (310) 785-4721 to discuss the steps necessary for placing the application in condition for allowance.

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If there are any fees due in connection with the filing of this response, please charge the fees to our Deposit Account No. 50-1314.

Respectfully submitted,
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